

Pablo; 23rd, snow on Coast Range. Oregon, 10th, 14th to 19th. Washington Territory, 12th, 13th, 14th, 16th, 17th, 18th.

Largest Monthly Snow-falls.—Emigrant Gap, Cal., 98.75 inches; Summit, Cal., 75.00 in.; Cisco, Cal., 71.00 in.; Alta, Cal., 49.00 in.; Colfax, Cal., 48.00 in.; Truckee, Nev., 46.50 in.; Surry, Me., 34.00 in.; Boca, Nev., 30.00 in.; Little Mountain, Ohio, 29.50 in.; Ogden, Utah, 25.50 in.; Palermo, N. Y., 25.00 in.; Coalville, Utah, 24.50 in.; Lunenburg, Vt., and Penn Yan, N. Y., 23.50 in.; Nile, N. Y. and Newport, Vt., 23.00 in.; Mt. Washington, 21.60 in.; Cleveland, Ohio, 21.50 in.; New Corydon, Ind., 20.10 in.; Cornish, Me., and Stafford, Vt., 20.00 in.; Grafton, N. H., 19.50 in.; Rowe, Mass., 19.00 in.; Lima, N. Y., 18.50 in.; Clinton, Mass., 18.00 in.; Gardiner, Me., 17.75 in.; Woodstock, Vt., 16.70 in.; Norwalk, Ohio, 16.58 in.; Orono, Me., 16.50 in.; Helvetia, W. Va., 16.25 in.; Dunbarton, N. H., and Carson City, Nev., 16.00 in.; Duluth, Mich., 15.50 in.; Waterburg, N. Y., 15.40 in.; Hermosa, Col., 15.30 in.; Auburn, N. H., and Alpena, Mich., 15.00 in.; Amherst, Mass., and Litchfield, Pa., 14.50 in.; Westborough, Mass., 14.00 in.; Antrim, N. H., 13.50 in.; Paterson, N. J., 13.25 in.; Hudson, Ohio, New Bedford, Mass., and Tehachapi, Cal., 13.00 in.; Ithaca, N. Y., 12.60 in.; Starkey, N. Y., 12.50 in.; Ruggles, Ohio, 12.00 in.; Wellsboro, Pa., 11.80 in.; Waltham, Mass., 11.50 in.; Northport, Mich., 11.30 in.; Lewisburg, Ohio, 11.30 in.; Ft. Collins, Col., 10.50 in.; Morristown, Dak., Minneapolis, Minn., New Castle, and Dyberry, Pa., Embarrass, Wis., Ardenia, White Plains and Hector, N. Y., and Keene, Cal., 10.00 in.

Snow from a cloudless sky.—Colorado Springs, 4th; Coleman, Tex., 14th; Detroit, Mich., 7th; Springfield, Mass., 5th; Starkey, N. Y., 19th.

The depth of snow on ground at end of month was reported as follows: In Maine, trace to 6 inches; New Hampshire, 0 to 12 in.; Vermont, 2 to 6 in.; Massachusetts, New York and Pennsylvania, trace; lower Michigan, trace to 1 in.; upper Michigan, 2 to 12 in.; Wisconsin, trace to 4 in.; Minnesota, 2 to 6 in.; Iowa, $\frac{1}{2}$ to 2 $\frac{1}{2}$ in.; Nebraska, trace to 2 in.; Dakota, 1 to 10 in.; Colorado, 1 to 20 in. at Hermosa; Wyoming Territory, trace to 3 in.; Montana, 1 inch at Virginia City; Utah, $\frac{1}{2}$ to 6 in.; Nevada, trace at Winnemucca.

Floods.—Mesquite, Tex., 28th and 29th, heavy rain-storm, fields badly washed, corn-fields considerably damaged. New Orleans, 2nd, high water broke the levee seven miles below the city; 7th, another break from 150 to 200 feet wide was reported at Kennerlyville, La. Louisville, 17th, river rose rapidly, flooding the lower floor of houses on Seventh and Water streets. Memphis, 11th, 12th, very heavy rain-storm, cellars flooded gas extinguished and eight bridges across Gayoso Bayou injured or destroyed; city sewers and crossings badly injured; Wolfe river rose rapidly carrying away \$5,400 worth of logs; all trains on roads leading into the city were delayed. Albany, N. Y., 14th, sudden rise in the river, flooding cellars on Quay street, also at foot of Broadway and Maiden Lane, causing considerable damage.

Precipitation during January, received after issue of January Review.—Arizona: Whipple Barracks, 0.41 inches; Ft. Lowell, 0.62; Ft. Verde, 1.08; Ft. Apache, 1.24; Ft. Grant, 0.65. California: Benicia Barracks, 1.32; Angel Islands, 2.56; Ft. Yuma, trace; Ft. Gaston, 8.45; Ft. Bidwell, 3.10; Oakland, 1.71; Poway, 1.13; San Geronimo, 1.78; San Buenaventura, 1.41; Campo, 3.00. Dakota: Ft. Sisseton, 0.30; Ft. Sully, 0.00; Ft. Totten, 0.40; Ft. Meade, 0.38. Idaho: Ft. Lapwai, 0.92; Ft. Coeur d'Alene, 3.74; Lewiston, 0.34. Michigan: Ft. Brady, 2.40; Petoskey, 1.53; Ypsilanti, 2.05. Montana: Ft. Benton, 0.24; Ft. Shaw, 0.10; Ft. Ellis, 0.87; Ft. Keogh, 0.14; Ft. Logan, 0.15; Ft. Assiniboine, 0.10; Blackfeet Agency, 0.48. Oregon: Ft. Stevens, 28.94; Ft. Klamath, 2.34; Ft. Harney, 0.56; Eola, 7.92; Albany, 11.19. Texas: Ft. Ringgold, 0.22; Ft. Brown, 3.13; Ft. Davis, 1.68; Coleman, 2.03; Edinburg, 1.48; Brownsville, 3.87. Washington Territory: Ft. Colville, 2.07; Ft. Canby, 22.28; Ft. Townsend, 3.40; Neah Bay, 25.70; Bainbridge Island, 17.62; Dayton, 3.37. Florida: Biscayne, 3.80; Okahumpka, 4.25; Daytona, 3.68; Orlando, 6.01. Massachusetts: New Bedford, 1.86; Williamstown, 3.39. Missouri: Oregon, 1.59. New Jersey: Dodge Mine, 2.36; Deckertown, 1.94. New York: Port Jervis, 2.65. Nevada: Carson City, 1.00. North Carolina: Sulphur Springs, 2.00. Minnesota: Breckenridge, 0.01.

RELATIVE HUMIDITY.

The percentages of mean relative humidity for the month range as follows: New England, 68 to 75; Middle Atlantic States, 60 to 77; South Atlantic States, 58 to 80; Eastern Gulf States, 68 to 79; Western Gulf States, 62 to 78; Ohio valley and Tennessee, 60 to 71; Lower Lake region, 68 to 75; Upper Lake region, 62 to 77; Upper Mississippi valley, 59 to 71; Missouri valley, 48 to 63; Red River of the North valley, 90 to 95; Eastern Rocky Mountain Slopes, 48 to 56; Texas, 26 at Stockton to 79 at Edinburg; Western Plateau, 36 at Yuma to 69 at Boise City; California, 53 to 72; Oregon, 79 to 83. *High stations* report the following averages not corrected for altitude: Virginia City, 57; Cheyenne and Denver, 51; Santa Fe, 47; Mt. Washington, 87.

WINDS.

The prevailing directions of the wind are shown by arrows flying with the wind, on chart No. II. On the coast of North Carolina, in Florida and thence along the Gulf coast to New Orleans they are *northwesterly*, but elsewhere south and east of Nebraska, Iowa and Wisconsin, they are *southerly* inclining to *westerly* in the Lake region and along the East and Middle Atlantic coasts. Along the south coast of New England, at Baltimore, Augusta, Atlanta, and from Nebraska northward, they are *northwesterly*.

Total Movements of the Air.—The following are the *largest* total movements recorded in miles at the Signal Service stations during the month: Delaware Breakwater, 13,730 miles; Cape May, 13,029; Wood's Holl, Mass., 12,987; Sandy Hook, 12,276; Thatcher's Island, Mass., 11,929; Cape Lookout, N. C., 10,668; Kittyhawk, N. C., 10,664; North Platte, 10,620; Cape Henry, 10,443; Indianola, Tex., 10,264; Breckenridge, Minn., 10,354; Barnegat, N. J., 10,134; Milwaukee, 9,965; Cheyenne, 9,894; Grand Haven, 9,793; Cape Hatteras, 9,757; Port Huron, 9,258; Erie, 9,069; Newport, 8,893. The *smallest* are: Stockton, Tex., 1,259 miles; Roseburg, Oregon, 2,055; Nashville, 2,105; Visalia, Cal., 2,151; La Mesilla, N. M., 2,181; Uvalde, Tex., 2,411; Santa Fé, 2,608; Deadwood, Dak., 2,634; Lynchburg, Va., 2,695; Augusta, Ga., 2,770; San Antonio, Tex., 3,343; Salt Lake City, 3,392; Portland, Or., 3,451; Olympia, Wash. Ter., 3,458; Silver City, N. M., 3,562; Boise City, Idaho, 3,602; Los Angeles, Cal., 3,700.

Local Storms.—Pilot Point, Tex., 24th, very severe wind storm, attaining a velocity of W. 59 miles, causing considerable damage to trees and fencing. Cincinnati, 18th, severe whirlwind of small diameter passed near the southern railway bridge, destroying considerable property. Nashville, 12th, during the progress of the heavy wind and rain storm, between the hours of 10 and 11 p. m., two small tornadoes were formed within the limits of the city; passing over it from SW. to NE., causing a large of destruction to property. The average width between the paths of the two storms was $1\frac{1}{2}$ miles, and over the central portion for a constant width of a $\frac{1}{2}$ mile no damage was done. The northern tornado commenced its work of destruction at a point about two miles southwest of the signal office, and passed to the northeast a distance of three or four miles, where all trace of the whirlwind's action disappeared. Property to the value of about \$30,000 was all destroyed in its path. Trees from $1\frac{1}{2}$ to 2 feet in diameter were uprooted or twisted off, and the debris carried in the direction of the whirl, which was from right to left. The southern tornado descended near Hillsboro Pike, where a small barn was first demolished, it then rose, passing entirely over several houses without injury, reaching the earth again in a short interval it moved to the Custom House, which it damaged to the amount of \$8,000; heavy blocks of stone weighing several tons were thrown from the walls, and the whole of one side torn down. After unroofing several buildings and destroying the spire of St. Pauls church the whirlwind disappeared. In the tracks of both tornadoes, the peculiar bounding action of the whirling cloud was easily discernable.

Sand Storms.—Umatilla, Or., 12th, 14th; Stockton, Tex., 12th, 24th; Ft. Garland, Col., 16th, 17th.

VERIFICATIONS.

Indications.—The detailed comparison of the tri-daily indications for February, with the telegraphic reports for the succeeding twenty-four hours, shows the general percentage of verifications to be 88.0 per cent. The percentages for the four elements are: Weather, 90.0; Direction of the Wind, 86.3; Temperature, 88.2; Barometer, 87.5 per cent. By geographical districts they are: for New England, 88.3; Middle States, 92.2; South Atlantic States, 86.7; Eastern Gulf States, 88.8; Western Gulf States, 87.9; Lower Lake region, 90.2; Upper Lake region, 88.7; Tennessee and the Ohio valley, 87.2; Upper Mississippi valley, 84.0; Lower Missouri valley, 85.3; Northern Pacific region, 92.6; Central Pacific coast region, 93.1; Southern Pacific coast region, 92.9. There were 10 omissions to predict out of 3,567, or 0.28 per cent. Of the 3,557 predictions that have been made, 139, or 3.65 per cent, are considered to have entirely failed; 89, or 2.50 per cent, were one-fourth verified; 385, or 10.83 per cent, were one-half verified; 145, or 4.08 per cent, were three-fourths verified; 2,808, or 78.94 per cent, were fully verified, so far as can be ascertained from the tri-daily weather maps.

Cautionary Signals.—166 Cautionary Signals were displayed during the month, of which 156, or 94.0 per cent., were justified by winds of 25 miles per hour or over at, or within a radius of 100 miles of the station. 107 Off-shore Signals were displayed, of which 98, or 91.6 per cent, were fully justified; 106, or 99.1 per cent, were justified as to direction; 98, or 91.6 per cent as to velocity; and 1, or 0.9 per cent, were not justified either as to direction or velocity. 65 of the Off-shore were changed from Cautionary. 273 Signals of both kinds were displayed, of which 254, or 93.0 per cent, were fully justified. The above does not include signals ordered for 50 display stations, where the velocity is only estimated. 51 cases of winds of 25 miles and over per hour, from scattering stations, were reported, and for which signals had not been ordered.

NAVIGATION.

In the table on the right-hand side of chart No. III are given the highest and lowest readings of the Signal Service river-gauges for the month, with the dates of the same. The *Missouri* remained frozen over at Yankton until the 24th, when observations were resumed; at Omaha and Leavenworth the variation in the height of water has not exceeded 4 feet during the whole month. The *Mississippi* continued frozen at St. Paul and La Crosse throughout the month; thence southward to St. Louis the range at any station did not reach 4 feet for the entire month; at Cairo the river fell slowly from the 1st to the 11th; on the 13th it commenced to rise rapidly, and by the 24th had risen to 43 ft. 5 in., or 3 ft. 5 in. above the danger-line, after which it fell slowly to the end of the month, reaching 41 ft. 10 in. on the 29th; at Memphis it fell slowly from the 1st to 12th, after which it rose to the end of the month, when it was within 8 in. of danger-line; at Vicksburg it was within 1 ft. of danger-line (41 ft.) on the 1st, but continued slowly falling until the 17th, when it reached 27 ft. 3 in.; on the 18th it commenced rising, and at the end of the month